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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,235	11/07/2001	Jennifer L. Lee	55393US011	1507

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EXAMINER	
BERMAN, SUSAN W	
ART UNIT	**PAPER NUMBER**
1711	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/21/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/21/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/008,235	LEE ET AL.	
	Examiner	Art Unit	
	Susan W. Berman	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02-23-2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-27,64-73,76 and 77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-27,64-73,76 and 77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02-23-2007 has been entered.

Response to Amendment

The rejection of claims 72-75 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn.

The rejection of claims 65, 67 and 72-75 under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 8-27, 64-73 and 76-77 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim recitation "wherein...comprises less than 10 weight percent of an alkoxylated, radiation curable monomer comprising main-chain alkoxylated functionality" is not

found within the specification as orginally filed. What is disclosed in the specification in [0055] of the prepublication US2002/0086914 is that it is desirable to limit the use of alkoxylated monomers comprising main chain alkoxylated functionality and that preferred reactive diluents comprise "no more than about 10 weight percent of such alkoxylated monomers" . Thus, applicant does not have basis for claiming "less than 10 weight percent" of the "fluid composition" that comprises an oligo/resin in addition to the reactive diluent.

Response to Arguments

Applicant's arguments filed 02/23/2007 have been fully considered but they are not persuasive.

Applicant argues that WO '787 does not teach compositions comprising less than 10 weight percent of an alkoxylated monomer comprising main-chain alkoxylated functionality. Applicant further argues that WO '787 teaches that if the total amount of tri- or higher functional material is less than 10% by weight, the properties such as hardness and scratch resistance may tend to suffer (page 16, last paragraph). This argument is not persuasive for the following reasons. WO '878 teaches a reactive liquid material comprising both monofunctional and difunctional material. WO '878 teaches that the reactive liquid should contain 20-60% by weight monofunctional material and at least 5% difunctional material (page 15-16). Tri- or higher functional material is included in a preferred embodiment and, thus, is not required to be present in the disclosed liquid material. WO '787 discloses that tri-functional materials, including tri- or higher functional oligomer, is preferably greater than 10 but not more than 30% by weight. Thus one skilled in the art at the time of the instant invention is taught that mixtures

of tri-functional main-chain alkoxylated acrylates and tri- or higher-functionality oligomers can be employed to provide 10 weight percent or more and the desired hardness and scratch resistance. The wt % of tri-functional main-chain alkoxylated acrylate can therefore, be less than 10% by weight. WO '787 discloses that the difunctional materials include propoxylated neopentyl glycol diacrylate, which is a diacrylate having main chain alkoxylation and is set forth in instant claim 15 as an adhesion promoting component. In the case when tri- or higher functionality alkoxylated acrylate are not present, the difunctional materials, including propoxylated neopentyl glycol diacrylate for example, can be present in amounts as low as 5% or as mixtures of difunctional materials wherein the main-chain alkoxylated diacrylate is present in amounts less than 10 by weight. Applicant has not provided any evidence of record to show that limiting the amount of main-chain alkoxylated di- or tri-acrylate in the instant claims compositions provides unexpected results compared with compositions as taught by WO '787.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 8-27, 64-73 and 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/299787. WO '787 discloses radiation curable ink jet ink compositions having a viscosity no greater than 35 mPa.s at 30 ^{0} C. WO '787 teaches compositions comprising a photoinitiator and oligomers such as polyester-, urethane- and epoxy-acrylates. A reactive liquid material comprising mono- and di- functional acrylates is taught. Preferred monofunctional

acrylates, used in amounts from 20 to 60 wt. %, are tetrahydrofurfuryl acrylate and isobornyl acrylate and acrylates of alkoxylated alcohols, e.g. 2-(2-ethoxyethoxy)ethyl acrylate, or vinyl monomers such as N-vinyl 2-pyrrolidone (pages 9-10 and 15). Difunctional acrylates having the required low viscosity, preferably at least 5 wt. %, include hexanediol diacrylates and propoxylated neopentyl glycol diacrylate, etc (pages 10-11and 16). Tri- or higher functional material is included in a preferred embodiment and, thus, is not required to be present in the disclosed liquid material. WO '787 discloses that tri-functional materials, including tri- or higher functional oligomer, when present are in amounts preferably greater than 10 but not more than 30% by weight. Tri-functional acrylates specifically taught are main-chain alkoxylated acrylates, preferably in amounts from 10-30 wt % (pages 11 and 16).

The instant claims require that the composition comprises less than 10 weight percent of an alkoxylated, radiation curable monomer comprising main-chain alkoxylated functionality. WO '787 teaches including difunctional acrylates in amounts of at least 5% by weight of reactive liquid material and discloses propoxylated neopentyl glycol diacrylate as one of the difunctional materials. It would have been obvious to one skilled in the art at the time of the invention to select compositions from those disclosed by WO '787 comprising a monofunctional material and a di-functional material in the reactive liquid material since WO '787 teaches that only a monofunctional and a di-functional material are required and that a tri- or higher functionality material is preferred but not required (page 8, last paragraph). It would have been obvious to one skilled in the art at the time of the invention to include propoxylated neopentyl glycol diacrylate in the compositions disclosed by WO '787 in an amount no more than 10 % by weight because WO '787 teaches amounts from 5% to 80% and, furthermore, because the disclosed

propoxylated diacrylate can be used in a mixture of difunctional materials wherein the amount of propxylated diacrylate is no more than 10% within the disclosure of WO '787. Furthermore, WO '787 does not require the presence of any alkoxylated acrylates and thus teaches the instantly claimed compositions wherein the amount of alkoxylated radiation curable monomer having main chain alkoxylated functionality is zero.

WO '787 also teaches that tri-functional alkoxylated acrylates can be used in amounts preferably from 10-30 wt % and that it is preferable to choose compounds having a low viscosity so that amounts toward the upper end of the weight range can be used. The teaching of a preferable amount to employ in the prior art does not limit the teaching of the reference to compositions comprising the preferred amount. Therefore, It would have been obvious to one skilled in the art at the time of the invention to provide compositions as disclosed by WO '787 comprising no more than 10 weight percent of an alkoxylated tri-acrylate material, as taught by WO '787. One of ordinary skill in the art at the time of the invention would have been motivated to employ an amount near 10 wt. % because WO '787 suggests that a low wt % is preferable. teaches that the amount of monomer employed is dependent on the viscosity of the selected monomer .

Another difference between the disclosed compositions and the instantly claimed compositions is that applicant requires that the reactive diluent include a high Tg component and 0.1 to 50 wt % adhesion promoting component comprising a heterocyclic radiation curable monomer or a monomer containing a pendent alkoxylated moiety. However, WO '787 teaches preferably including tetrahydrofurfuryl acrylate and/or acrylates of alkoxylated alcohols, e.g. 2-(2-ethoxyethoxy)ethyl, as the acrylate monofunctional acrylate. Thus, It would have been

obvious to one skilled in the art at the time of the invention to employ mixtures of mono-functional acrylates and mixtures of multifunctional acrylates in the reactive diluent mixture taught by WO '787. It would further have been obvious to one skilled in the art at the time of the invention to select isobornyl acrylate, as taught by WO '787, thus providing applicant's high Tg component. It would further have been obvious to one skilled in the art at the time of the invention to employ tetrahydrofurfuryl acrylate and/or 2-(2-ethoxyethoxy)ethyl acrylate as monofunctional monomers in the disclosed compositions, thus providing applicant's adhesion promoting component, as taught by WO '787. WO '787 provides motivation to employ a mixture of monofunctional monomers in amounts from 20-60 wt% of reactive material in the ink and to select isobornyl acrylate and/or tetrahydrofurfuryl acrylate as the monofunctional material by teaching that these cyclic acrylates are "more preferred" (page 9, last paragraph). Motivation is provided to select isobornyl acrylate by the teaching of WO '787 that isobornyl acrylate is a preferred monofunctional monomer and by the use of isobornyl acrylate in the examples. Motivation to include tetrahydrofurfuryl acrylate is provided by the teaching of WO '787 that this is a preferred monomer. Motivation to select 2-(2-ethoxyethoxy)ethyl acrylate is provided by naming it as the example of an acrylate of alkoxylated alcohols to be used as monofunctional acrylate (page 10, first 5 lines). One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing useful ink jet ink compositions by the teaching of WO '787 that these monomers are preferred and provide the required viscosity for ink jet ink printing, in the absence of a showing of unexpected results therefrom.

With respect to claim 14, It would have been obvious to one skilled in the art at the time of the invention to determine the weight percents of specfic monomers required to obtain the

desired viscosity and other properties from the teachings of WO '787. With respect to claim 23, It would have been obvious to one skilled in the art at the time of the invention to employ N-vinylcaprolactam as the monofunctional vinyl monomer because it is analogous to the disclosed N-vinylpyrrolidone taught by WO '787. With respect to claim 24, It would have been obvious to one skilled in the art at the time of the invention to employ propoxyethyl (meth)acrylate as a monofunctional monomer in the reactive diluent because WO '787 teaches using and acrylate monomer of an alkoxylated alcohol. With respect to claim 25, It would have been obvious to one skilled in the art at the time of the invention to employ diacrylate of neopentyl glycol in the reactive diluent because WO '787 teaches that this monomer has a suitable low viscosity. With respect to claim 64, WO '787 teaches compositions having a viscosity less than 35 mPa.s, thus encompassing a viscosity of "up to 50 cp at 25^0 C, as set forth in claim 64.

With respect to claims 26 and 27, It would have been obvious to one skilled in the art at the time of the invention to employ both employ tetrahydrofurfuryl acrylate and 2-(2-ethoxyethoxy)ethyl acrylate as monofunctional monomers in the disclosed compositions and to determine the amounts of each required to obtain the desired properties. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of providing a radiation curable ink jet ink free of non-reactive diluent and having the desired viscosity, surface tension, volatility, stability and drying rate, as taught by WO '787, because WO '787 specifically teaches the monofunctional and difunctional materials set forth in the instant claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 8-27, 64-73 and 76-77 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,534,128. Although the conflicting claims are not identical, they are not patentably distinct from each other because the components of the compositions meeting the definitions set forth in the claims of US '128 and the instant application can be the same components although the definitions in the claims are not identical. The aliphatic urethane acrylate oligomers set forth in the claims of US '128 correspond to the oligo/resin set forth in the instant claims. The radiation curable reactive diluent set forth in the claims of US '128 considered in view of the disclosure of components providing the reactive diluent comprises the instantly claimed reactive diluent because the same components as disclosed are set forth in the instant claims.

Claims 8-27, 64-73 and 76-77 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,558,753. Although the conflicting claims are not identical, they are not patentably distinct

from each other because the components of the compositions meeting the definitions set forth in the claims of US '753 and the instant application can be the same components although the definitions are not identical. The oligo/resin is set forth in the claims of US '753 and in the instant claims. The radiation curable reactive diluent set forth in the claims of US '753 considered in view of the disclosure of components providing the reactive diluent comprises the instantly claimed reactive diluent because the same components as disclosed are set forth in the instant claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Berman

SB
3/6/07

Susan W Berman
Primary Examiner
Art Unit 1711